

**What is claimed is:**

- 1 1. A method of calibrating a brake system for stationary equipment, comprising:
  - 2 applying a first input signal having a value to a brake of the brake system, a brake
  - 3 being coupled to a shaft and configured to provide a first brake output to the shaft in
  - 4 response to the first input signal;
  - 5 determining a value of a first threshold output associated with the value of the
  - 6 first input signal, the value of the first threshold output being the amount of force that
  - 7 moves the shaft with respect to a housing when the first input signal is applied to the
  - 8 brake;
  - 9 storing in a memory uniquely associated with the brake, an association of the
  - 10 value of the first input signal and the value of the first threshold output;
  - 11 applying a second input signal having a value to the brake, the brake configured
  - 12 to provide a second brake output to the shaft in response to the second input signal;
  - 13 determining a value of a second threshold output associated with the value of the
  - 14 second input signal, the second threshold output being the amount of force that moves the
  - 15 shaft with respect to the housing when the second input signal is applied to the brake; and
  - 16 storing in the memory an association with the value of the second input signal and
  - 17 the value of the second threshold output.
- 1 2. The method of claim 1, wherein the brake system is disposed within a medical
- 2 rehabilitation device, the medical rehabilitation device configured to receive input signal
- 3 values from a therapy user.

1     3.     The method of claim 1, wherein the further comprising:  
2             receiving a desired threshold output, the desired threshold output having a value;  
3             and  
4             calculating a value of a third input signal needed to be provided to the brake so  
5             that the brake provides a third brake output such that the desired threshold output is  
6             required to move the shaft with respect to the housing.

1     4.     The method of claim 3, further comprising:  
2             applying a fourth input signal having a value to the brake, the brake configured to  
3             provide a fourth brake output to the shaft in response to the fourth input signal;  
4             determining a value of a third threshold output associated with the fourth input  
5             signal, the value of the third threshold output being the amount of force that moves the  
6             shaft with respect to the housing when the fourth input signal is applied to the brake  
7             system;  
8             storing in the memory, an association of the value of the fourth input signal and  
9             the value of the third threshold output; and  
10            determining whether the value of the desired threshold output is between the  
11            value of the first threshold output and the value of the second threshold output or between  
12            the value of the second threshold output and the value of the third threshold output.

- 1    5.    The method of claim 3, wherein the calculating includes interpolating between the  
2        association of the value of the first input signal and the value of the first threshold output  
3        and the association of the value of the second input signal and the value of the second  
4        threshold output.
- 1    6.    The method of claim 1, wherein the determining the value of the first threshold output  
2        includes rotating the shaft with respect to the housing to find a slip point of the brake  
3        system.
- 1    7.    The method of claim 1, wherein the first input signal is a voltage.
- 1    8.    The method of claim 1, wherein the first input signal is a hydraulic pressure.
- 1    9.    The method of claim 1, wherein the first input signal is a pneumatic pressure.
- 1    10.   An apparatus, comprising:  
2        a shaft coupled to a housing and configured to move with respect to the housing;  
3        a brake configured to receive a plurality of input signals and to modify a motion  
4        of the shaft with respect to the housing in response to the plurality of input signals, each  
5        input signal having a value, each input signal from the plurality of input signals being  
6        uniquely associated with a brake output, each brake output from the plurality of brake  
7        outputs being uniquely associated with a threshold output, a value of each threshold

8 output being an amount of force that moves the shaft with respect to the housing when  
9 the associated brake output is produced by the brake;

10 a memory uniquely associated with the brake and configured to store a plurality  
11 of input-signal-value/threshold-output-value associations for the brake; and

12 a processor coupled to the memory and the brake, the processor being configured  
13 to interpolate an input signal value based on a threshold output value and the input-  
14 signal-value/threshold-output-value associations.

1 11. The apparatus of claim 10, wherein the brake is disposed with a medical rehabilitation  
2 device.

1 12. The apparatus of claim 10, wherein the brake is an electrical brake and the input signal is  
2 a voltage.

1 13. The apparatus of claim 10, wherein the brake is a hydraulic brake and the input signal is a  
2 pressure.

1 14. The apparatus of claim 10, wherein the brake is a pneumatic brake and the input signal is  
2 a pressure.

1 15. The apparatus of claim 10, wherein the brake is a mechanical brake and the input signal  
2 is a force.

1 16. The apparatus of claim 10, wherein the shaft is configured to rotate with respect to the  
2 housing.

1 17. A method, comprising:

2 receiving a plurality calibration values uniquely associated with a brake system;

3 and

4 interpolating an input value for a specified output value based on the calibration  
5 values.

1 18. The method of claim 17, further comprising:

2 storing the calibration values in a memory uniquely associated with a brake  
3 system.

1 19. Processor-readable code stored on a processor-readable medium, the processor-readable  
2 code comprising:

3 code to send a first input signal having a value to a brake system coupled to a  
4 shaft and configured to provide an output to the shaft,

5 code to determine a value of a first threshold output based on the first input, the  
6 value of the first threshold output being associated with an amount of force that moves  
7 the shaft when the first input signal is provided to the brake system;

8 code to store an association of the value of the first input signal and the value of  
9 the first threshold output;

10 code to send a second input signal having a value to the brake system;

11 code to determine a value of a second threshold output based on the second input  
12 signal, the second threshold output being associated with an amount of force that moves  
13 the shaft when the second input signal is provided to the shaft; and  
14 code to store an association with the value of the second input signal and the  
15 value of the second threshold output.

1 20. A method of calibrating a brake system, comprising:

2 applying a first input signal having a value to a brake of the brake system, the  
3 brake being coupled to a shaft and configured to provide a first output to the shaft in  
4 response to the first input, the first output having a value;

5 determining the value of the first brake output;

6 storing in a memory uniquely associated with the brake, an association of the  
7 value of the first input signal and the value of the first output;

8 applying a second input signal having a value to the brake, the brake configured  
9 to provide a second output to the shaft in response to the second input signal, the second  
10 output having a value;

11 determining the value of a second output; and

12 storing in the memory an association with the value of the second input signal and  
13 the value of the second output.